UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,975	04/13/2006	Anders Lunden	1026-0005WOUS	7027

49698 7590 02/12/2008

MICHAUD-DUFFY GROUP LLP
306 INDUSTRIAL PARK ROAD
SUITE 206
MIDDLETOWN, CT 06457

EXAMINER	
PALABRICA, RICARDO J	

ART UNIT	PAPER NUMBER
3663	

MAIL DATE	DELIVERY MODE
02/12/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,975	LUNDEN, ANDERS	
	Examiner	Art Unit	
	Rick Palabrica	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/17/08 RCE and 12/19/07 Amendment*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on 1/17/08, which directly amended claims 16 and 25, and traversed the rejection of claims in the 10/19/07 Office action, has been entered.

Applicant's arguments with respect to the rejected claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 16-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "thin profile" in claim 16 is a relative term which renders the claim indefinite. The term "thin" is not defined by the claim, the specification does not provide

a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 19 recites the limitation, "at least one curved side portion, which has an extension upwards from a substantially plane surface." Underlining provided. The claim is vague, indefinite and incomplete and its metes and bound cannot be determined because the orientation of the plane surface has not been defined. Note that if the so-called plane surface is oriented vertically, any extension, e.g., 90 degrees from the surface will be oriented sideways not upwards.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 16-25 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda et al. (U.S. 5,276,718) alone or in combination with Helmersson (U.S. 6,470,061). Ueda et al. disclose the applicant's claim limitations except for the cover element with the claimed configuration.

Ueda et al. teach a control blade for a boiling water reactor (e.g., see Figs. 34-36 and col. 2, lines 1+).

As to claim 16, applicant's claim language reads on Ueda et al. as follows: a) "plurality of channels" reads on holes 4a (see Fig. 34); b) "free edge portion with a

recess" reads on edges 2d, 2d with a recess between them; c) "thin profile element" reads on element 3b (see Fig. 35).

Note from Fig. 36 that element 3b does not substantially encroach on the space of absorber material 4 and thereby it does not substantially reduce the possibility to apply the absorber material 4 near the free end surface of the control blade. Additionally, the function of element 3b is only to prevent the absorber material 4 from dropping out of openings to 2a, and its thickness can be optimized to meet the other design constraints on the control blade, e.g., reactivity requirement/blade.

Ueda et al. teach a configuration for sealing the free end of a blade that does not require a welding member 5, bending the ends 2d, 2d, and welding these ends (Fig. 20). This non-welded configuration for the sealing instead uses a cover element 43 that has a cover portion positioned outside the recess and forms an external end surface of the control blade in a mounted state. This cover element 43 is sealingly attached to the free edge portion to seal the recess.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus in Figs. 34-36 in Ueda et al., by his own teaching, to use the sealing configuration shown in Fig. 20 that applies a cover element 43 instead of welding the ends 2d, 2d, to gain the advantages thereof (i.e., simpler construction), because such modification is no more than the use of a well known expedient within the nuclear art and the substitution of one sealing configuration with another well known configuration.

Alternatively, Helmersson teaches a control rod for a boiling water reactor that teaches sealing the free ends of the blade either by welding (see Fig. 6) or by using a cover element 8 having a cover portion positioned outside the recess and forms an external end surface of the control blade in a mounted state, as in applicant's case. Thus, Helmersson teaches two alternatives that are equally effective for sealing the free end of the control blade.

. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus in Figs. 34-36 in Ueda et al., by the teaching in Helmersson, to use a cover element 43 instead of welding the ends2d, 2d. A person of ordinary skill has good reason to pursue the alternative option of using a cover element for sealing, which option is within his/her technical grasp. If this option leads to anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.

As to claims 17 and 18, applicant has neither defined the exact location nor a specific reference for the so-called bottom surface of the recess, and absent such definition, the examiner interprets the term broadly and reads bottom surface as the surface inside the opening 2a away from tie member 1 in Ueda et al. (Note that a recess does not necessarily have bottom surface. For example, a free-standing conduit that has an internal recess that spans the entire length has no bottom surface.) As shown in Fig. 36, the width of profile element 3b corresponds substantially to the width of the bottom surface of the recess. As shown in Fig. 34, profile element 3b has a substantially plane surface that is applied against a corresponding plane bottom surface.

As to claim 19, applicant has not identified any specific advantage of the claimed configuration of the profile element having at least one curved side portion that has an extension upwards from a substantially plane surface. Thus, any extension of the profile element would be matter of design choice or be dictated upon by design constraints, e.g., heat dissipation requirements for the control blade.

As to claim 20, the thickness of the profile element is dependent upon the dimensions of the specific control blade, including the available space where this element is to be disposed. Alternatively, said thickness is a matter of optimization within prior art conditions or through routine experimentation (see MPEP 2144.05II.A). For example, while a thicker element is more structurally rigid than a thinner one, it would make the cost of manufacturing the blade more costly.

As to claims 21 and 22, profile element 3b in Ueda et al. has a continuous extension along a whole length of the recess (see Fig. 34) and it made of a metal, i.e., Hf (see col. 2, lines 19+).

As to claims 23 and 24, in Ueda et al., as modified by its own teaching or by the teaching in Helmersson, which uses a cover element instead of welding for sealing, the cover element abuts the profile element and the contact surfaces of these two elements abut each other.

As to claim 25, Fig. 7 in Helmersson, which shows cover element 8, or Fig. 20 in Ueda et al., which shows cover element 43, further illustrates a support portion that has a width less than the width defined by the recess.

As to claim 27, the limitation, "to be attached at the edge ..." is a statement of intended or desired use that Ueda et al. is capable of meeting (see discussion on intended use below). Alternatively, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to have attached the cover element by two longitudinal welds because welding a well known expedient for sealing the joint between two metal surfaces.

As to claims 28 and 29, Ueda et al. teaches absorber material 4 as boron carbide powder (see col. 2, lines 22+).

The claims are replete with statements that are either essentially method limitations or statements of intended or desired use. For example, "to receive an absorber material", "to be applied against a corresponding substantially plane bottom surface," etc. These clauses, as well as other statements of intended use do not serve to patently distinguish the claimed structure over that of the reference, as long as the structure of the cited references is capable of performing the intended use. See MPEP 2111-2115.

See also MPEP 2114 that states:

> A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647.
>
> Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531.
>
> [A]pparatus claims cover what a device is, not what a device does." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 15 USPQ2d 1525,1528.

As set forth in MPEP 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

The system in the cited reference is capable of being used in the same manner and for the intended or desired use as the claimed invention. Note that it is sufficient to show that said capability exists, which is the case for the cited reference.

4. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda et al. alone or in combination with Helmersson as applied to claims16-25 and 27-29 above, and further in view of Research Disclosure 33925/92 (hereinafter referred to as RD '92).

RD '92 teaches a control blade of cruciform cross section that is typical of a boiling water reactor (e.g., see figure). The reference teaches that it is old and advantageous to have grooves 8, 9 in the recess (see Fig. and page 537)

All references are in the same field of endeavor.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by the modified Ueda et al., by the teaching of RD '92 to include grooves in the recess, e.g., between the bottom of part 3b and inner wall2b, to gain the advantages thereof (i.e., favorable pressure absorbing properties as per RD '92)), because such modification is no more than the use of a well known expedient within the nuclear art. This groove forms a passage that extends between adjacent channels under the profile element, as in the claim.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:00-4:30, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rick Palabrica/
Primary Examiner, Art Unit 3663

February 7, 2008